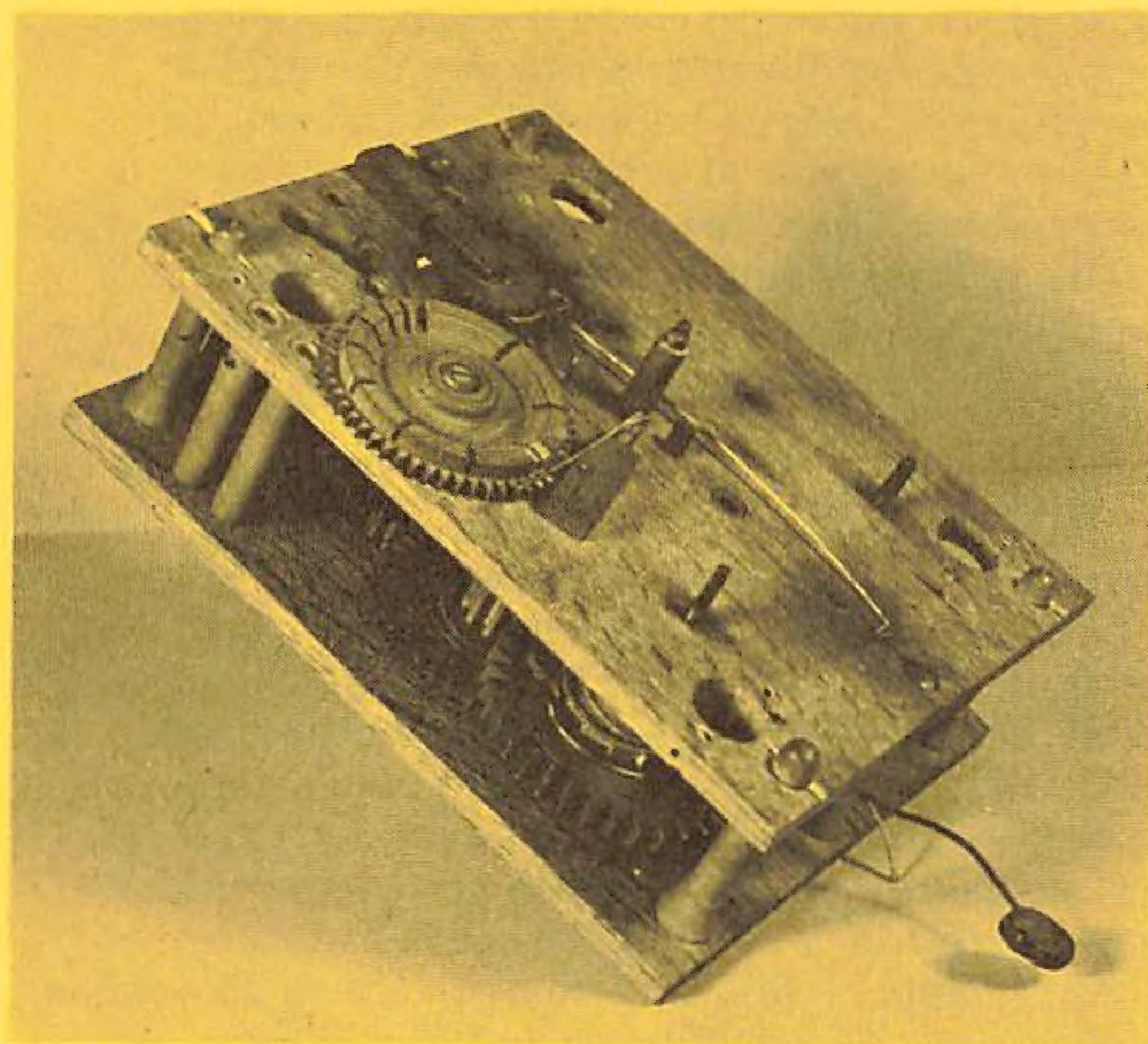


## From the Academy Collections



The dawn of a new era, the Industrial Revolution, was heralded by the manufacture of wood works clocks in America. The War of 1812 presented the American clockmakers with the prospect of discontinuing manufacture or finding some material other than sheet brass which, heretofore, had been supplied to them by the English. Using oak and cherry wood with wire pivots to fabricate clocks proved to be easier and less costly, lending itself more readily to simple mass production techniques. The price of the new product, the wood works clock, was only a fraction of the cost of the brass, hand-crafted counterpart; thereby, for the first time, everyone was able to afford a clock of his own.

The practice of manufacturing clocks from wood continued until about 1835 when sheet brass dropped greatly in price. The very ships that had once been used to bring expensive brass works clocks from England and Europe to America now were carrying large quantities of American wood works clocks abroad. This cheap, mass-produced clock gradually forced the discontinuance of manufacture of fine, hand-crafted clocks before 1900. The "Golden Era of Clockmaking", the period from 1690 to 1890, was at an end due to mass production techniques. A sad accompaniment was the elimination of the horological artisan with his high degree of knowledge and skill.

The illustration above is a typical American wood works design and is part of the Dr. William Barclay Stephens Collection on display at the Academy.

(Photo by Toshio Asaeda, CAS)

Bruce Kock

"The list goes on and on -- first records for nearly all the hemiptera collected so far, first sphinx moth from Wenman (caught in a mist net!), first grasshopper from Culpepper, first mosquitoes from Wenman (larvae taken alive for rearing - they breed in tiny pools 3 to 10 inches across in the lava rocks, the only source of fresh water), etc.

"I wish I had time to relate all the little things we are discovering about so many things here -- the geology, the marine life, the plants, even the Darwin finches "everyone knows everything about"... These islands are full of surprises, every day!"

Cavagnaro's participation in this international scientific expedition, in which he is one of several representing the Academy, was made possible by a grant to the CAS from the Belvedere Scientific Fund.

### NEW MEMBERS OF THE ACADEMY

#### Regular Membership

Dr. Lary N. Abramson  
Mr. Edgar Adamson  
Miss Holly Allen  
Mrs. Dulcie M. Barber  
Miss Vera A. Barnes  
Dr. Elmer Belt  
Miss Ursula Blau  
Mr. Karl M. Churchill  
Miss Nancy Lowell Compton  
Mr. D. D. Cudaback  
Miss Grace R. Floyd  
Mr. Ronald A. Gelini  
Mr. W. A. Greene, Jr.  
Mr. William J. Helfrich  
Dr. Horton Hinshaw, Jr.  
Mr. Norman Hodgkin  
Mr. Rudin M. Johnson  
Mr. Kenneth Kjellman

Mr. Edward J. Klinko  
Miss Natalie Knauth  
Mr. John H. Kramer  
Dr. Arthur L. Leonard, Jr.  
Mr. Parker Wright Meade  
Mr. Donald L. Minar  
Miss Melita Paul  
Mr. William M. Pearson  
Mr. Joseph M. Pettit  
Mr. Charles M. Rick, Jr.  
Mr. David W. Schimberg  
Mr. Kenneth M. Stocking  
Miss Elizabeth Strong  
Mr. John G. Tyler  
Miss Virginia P. Wilson  
Mr. Jack C. Worthen, Jr.  
Mr. Cecil Wright, Jr.  
Mr. Howard Wurlitzer

#### Family Membership

Mr. Albert A. Andersen  
Mr. Robert E. Berry  
Mr. Michael Biernoff  
Mr. David E. Brown  
Mr. William W. Burton  
Mr. & Mrs. Wm. F. Crawford  
Mr. Victor Honig  
Miss Velma A. Kaufman

Mr. Robert Montgomery  
Mr. Steve Redeker  
Mr. Gregory Shore  
Mr. Fred M. Taylor  
Mr. Alfred M. Twigg  
Mr. & Mrs. Ray Valdez  
Dr. & Mrs. David G. Willis  
Mr. Lance Wilson

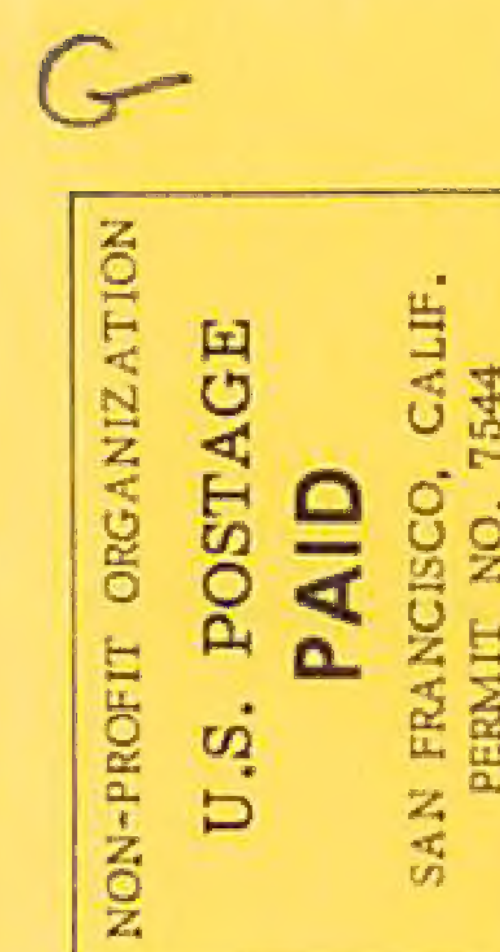
#### Student Membership

Allen Thomas  
Alison Becker  
George Donellan  
John Donellan  
Patti Duncan  
George Ellenwood  
Todd Ellingwood  
Katherine Marie Edmison

William Hicock  
Douglas Huffman  
Eugene Lozano  
George Maillard  
Michael Moore  
John Murphy  
Gregory Resnick  
Terry Tolentino

THE CALIFORNIA ACADEMY OF SCIENCES  
GOLDEN GATE PARK  
SAN FRANCISCO 18

Open every day of the year 10:00 a.m. to 5:00 p.m. - Admission Free



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MARCH 1964



# MARCH

at the  
CALIFORNIA ACADEMY OF SCIENCES

## MARCH MEETING

Date: Tuesday, March 24, 8:15 p.m.  
Place: Morrison Auditorium  
Speaker: Alfred G. Etter  
Subject: "AWAKE TO NATURE"

Henry David Thoreau once described the crow of a cock as "an expression of the health and soundness of nature - a brag for all the world." This is the note on which Mr. Etter's Audubon film opens, the last in the current series of Screen Tours. It is an intimate look at the marvels of nature that are often close at hand but which business or busyness preclude our seeing. "Awake to Nature" is a challenge to each of us to keep the earth habitable, to safeguard the health and soundness of nature, and to make our environment something of which future generations can be rightfully proud.

Dr. Etter has devoted his life to studying the world of nature in an effort to discover some of the complex forces which govern the wildlife community.

## MORRISON PLANETARIUM

Beginning March 4 and extending through April 5: "RAINBOWS, AURORAS AND OTHER WONDERS".

The marvelous colors that appear in the sky are given a full, glittering treatment in this sky show - rainbows, halos, sun-dogs, lightning and the northern lights - to mention but a few.

Performances daily at 3:30 p.m., and in the evening, Wednesday through Sunday, at 8:30. Extra matinees on Saturday and Sunday at 2:00. No shows on Monday and Tuesday nights. Adults, 75¢, Juniors, 40¢.

## SPECIAL EXHIBITS

Exhibit of the Month: "BIRD OF PARADISE", a gift to the Academy from the Convent of the Sacred Heart, San Francisco. Main Foyer, Science Museum.

"SWEDISH INVENTIONS AND OTHER SCIENTIFIC ADVANCES" continues in Lovell White Hall of Man and Nature through March 22.

Coming: April 4 through 8, "1964 BAY AREA SCIENCE FAIR", an event not to be missed.

## "SCIENCE IN ACTION"

Thursday nights, 7:30 p.m., KTVU-TV, Channel 2

- March 5: "THE LUNGS", with Guest Scientist James Kieran, M.D., Stanford University  
March 12: "SYNCOM", with Gordon Murphy, Syncom Project Manager, Hughes Aircraft Co.  
March 19: "ECHO LOCATION", with Dr. Thomas C. Poulter, Stanford Research Institute  
March 26: "THE ULTRA X-RAY", with Jacob Haimson, Manager of Accelerator Research, Varian Associates

## NEWS and NOTES .....

Currently, the #1 subject of interest at the Academy is the Galapagos International Scientific Project in which, as readers of the NEWSLETTER are well aware, the Academy is deeply involved. The following excerpts from a letter written to the Department of Entomology by young David Cavagnaro, a student on leave from his studies at the University of California at Davis, radiates some of the intense excitement of such a scientific adventure. Cavagnaro's name is familiar to the membership because of his participation in Dr. Edward S. Ross' eighteen-month insect collecting trip through tropical Asia and Australia. The 21 year-old scientist's overseas adventures continue in his assignment to help make the Galapagos insect fauna better known. The letter was written February 2.

"At last I must say something to what is happening here on the edge of the world, or the beginning of it. To relate all the...experiences we have had so far would be too staggering an undertaking. The circumstances of our arrival on the "Golden Bear", advancing on the quiet community of Academy Bay with 60 men, a U.S. Navy seaplane tender, with two seaplanes and two helicopters buzzing back and forth, and an Ecuadorian landing craft, patrol boat, and a third larger ship of some unknown description, were so remarkable that I think many months will be required for complete recovery...

"After the...dedication [of the Darwin Research Station. Ed.]...we were at last able to settle down to work. Bob Schuster and I had nearly a week of good collecting in the Academy Bay area. The fauna is much richer than I expected, especially at night. We got two hours of generator use before both were on the fritz and we haven't had time yet to tinker with them. We have been bringing in great quantities of moths, beetles, antlions, etc., in spite of a full moon...I enriched the catch of several dipterous species tenfold by placing three dead fish inside the trap; it works wonders! I hate to contemplate all the new records we must be getting.

"I am currently participating in a very fine island-hopping trip by helicopter. About eight of us were fortunate enough to be able to use this excellent opportunity to reach places never before explored by anyone. Several places in the archipelago are totally inaccessible from the sea or on foot. I would not have missed the chance for anything...We were landed on the small outermost islands, Culpepper and Wenman, especially interesting because of their extreme isolation.

"Without going into detail, let me just say that this was a real experience to end all experiences. We were the first human beings to see the top of Culpepper, a little island with vertical cliffs hundreds of feet high on all sides. After we claimed the island for Ecuador [to whom the islands belong. Ed.]...we set to work on the weirdest place I have ever experienced. The place is nesting grounds for umpteen thousands of birds -- boobies, finches, mockingbirds, frigate birds, and terns. The birds are totally tame and in fact were an absolute, noisy nuisance! One had to watch every step to avoid stepping on eggs, crushing a fledgling, or smashing a tern, and sitting accidentally on nesting boobies was not an uncommon hazard. The entomology was fascinating in spite of the hazard of 10 and 12 inch centipedes. Among my collection one may find two species of ants, two species of tenebrionids, two of weevils, three carabid species, one antlion species, countless microleps and small flies, etc...It is a very limited fauna but nevertheless fascinating...The island is moist and thickly vegetated, but probably less than 12 species of plants occur there.

"Wenman Island is slightly larger, much more rugged, and quite different in vegetation.. I was the only member of our party who negotiated the difficult cliffs to the topmost plateau...and therefore have the only pictures of the special Scalesia-Croton scrub growth -- a fairyland of lichens -- which grow only on the higher plateau...

"Probably the most startling find near the top -- which nearly knocked me a thousand feet into the sea from astonishment -- was that while resting against the lichen-covered cliffs, I suddenly became aware of the fact that the entire top of Wenman's craggy ridge...is actually one mammoth Embioptera colony! [Embioptera are the strange silk-spinning insects Dr. Ross is currently monographing. Ed.] I've never seen so many embiids in one place! But this cliff zone was the only place I found them on the whole island, and so far have not seen them elsewhere...

(Continued on reverse)